

In re Appln. of Saunders et al.
Corres. to Int'l Application No. PCT/GB00/03368

REMARKS

Claims 1-25 are currently pending in the present application. Claims 3-11, 13-22 and 24 have been amended to remove the multiple dependency of those claims. Claim 26 has been cancelled as it is in not in proper U.S. patent practice format. No new matter has been made by way of these amendments.

If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted



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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

SAUNDERS et al.

Art Unit: Unassigned

Corres. to International

Application No. PCT/GB00/03368

Examiner: Unassigned

Filed: Concurrently

For: ADAPTIVE MULTIFILAR ANTENNA

**AMENDMENTS TO THE CLAIMS
MADE VIA PRELIMINARY AMENDMENT**

Please amend claims 3-11, 13-22, and 24 as follows:

3. (Amended) An antenna according to claim 1 [or claim 2], wherein the control means is operable to control the operation of the matching circuit to adjust the properties of the multifilar antenna to suit better a current signal to be received or transmitted.

4. (Amended) An antenna according to [any preceding] claim 1, including switch means associated with a plurality of the filaments for selectively altering the electrical length and/or interconnections of the filaments and the signal connections to/from the filaments being at a first end of each filament; and

the switch means being operable to selectively interconnect pairs of filaments a second end of those filaments being remote from the first end.

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5. (Amended) An antenna according to [any preceding] claim 1, including switchable filaments having switch means for selectively altering the electrical length and/or interconnections of the switchable filaments and

each of the switchable filaments including at least a first filament section and a second filament section; and

the switch means being operable to selectively connect or isolate the first and second filament sections of each switchable filament so as to vary the electrical length of that filament.

6. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which:

the detecting means is operable to detect a signal to noise ratio of a received signal; and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal to noise ratio of the received signal.

7. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which:

the detecting means is operable to detect a signal to (noise plus interference) ratio of a received signal; and

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the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal to (noise plus interference) ratio of the received signal.

8. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which:

the detecting means is operable to detect a signal level of a received signal;
and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the signal level of the received signal.

9. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which:

the detecting means is operable to detect a VSWR for a transmitted signal;
and

the control means is operable to control the operation of the matching circuit and/or the weighting circuit so as to improve the VSWR for transmission of that signal.

10. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which the detecting means comprises:

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analogue to digital conversion means for converting respective signals received by the filaments and/or filament group into corresponding digital representations;

a memory for storing the digital representations;

means for combining the digital representations using respective phase relationships and gains; and

means for detecting properties of the antenna by analysis of the combined digital representations.

11. (Amended) An antenna according to [any one of claims] claim 1 [to 9], in which the detecting means comprises:

means for combining respective signals received by the filaments and/or filament group using respective phase relationships;

analogue to digital conversion means for converting the combined signals into a corresponding digital representation;

a memory for storing the digital representation; and

means for detecting properties of the antenna by analysis of the combined digital representations.

13. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which the detecting means operates at least during reception of a reference signal burst by the antenna.

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14. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which n is an even integer.

15. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which n is equal to 4 or 6.

16. (Amended) An antenna according to [any preceding] claim 1, wherein n is 4 and including two filament groups each of two diametrically opposed filaments, the filaments in each respective group being coupled together with a phase weighting of substantially 180° .

17. (Amended) An antenna according to [any preceding] claim 1 wherein the filaments in the or each filament group have a diversity correlation of 0.7 or better.

18. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which the filaments are helically shaped.

19. (Amended) An antenna according to [any one of the preceding claims] claim 1, in which the filaments are at least partially intertwined.

20. (Amended) An antenna according to [any preceding] claim 1, having a volute of generally elliptical or rectangular axial cross-section.

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21. (Amended) An antenna according to [any preceding] claim 1, wherein the weighting circuit operates at baseband.

22. (Amended) An antenna according to [any of claims] claim 1 [to 18], wherein the weighting circuit operates at RF.

24. (Amended) An antenna according to [any preceding] claim 1, including a matching circuit for matching the characteristic impedance of the antenna to that of a transmitting and/or receiving apparatus.